Review Article

Digital-based Indonesian Language Learning Strategy in Higher Education: A Systematic Review for 2020-2024

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Abstrak: This study aims to analyze digital-based Indonesian language learning strategies in higher education through a systematic review of articles published between 2020 and 2024. Based on a literature search in Google Scholar, 100 relevant articles were found, of which 84 articles met the inclusion criteria. The analysis results show that the technologies used in Indonesian language learning include ICT, Artificial Intelligence (AI), digital learning media, social media platforms (YouTube, TikTok, Instagram), and interactive applications such as Kahoot and quizzes. Popular learning methods include flipped classroom, Problem-Based Learning (PBL), and Project-Based Learning (PJBL), which support the development of 21st-century skills such as critical thinking, creativity, communication, and collaboration. Furthermore, the COVID-19 pandemic accelerated the adoption of digital learning, which significantly influenced Generation Z students' learning methods. However, limited access to the internet in remote areas remains the main challenge in implementing digital learning. Therefore, improving technology infrastructure and providing training for lecturers to optimize the use of technology in learning, as well as policies that support equitable access to digital education across Indonesia, are essential. This study provides insights for the development of digital-based learning strategies in higher education.

Keyword: Indonesian language; Learning Strategies; Technology; Systematic Review.

1. Introduction

Education in Indonesia, especially at the tertiary level, has undergone major changes in recent decades, along with the rapid development of information and communication technology (ICT). One of the significant changes affecting education is the utilization of digital technology in the learning process [1]. Digital-based learning, which was previously limited to certain subjects, is now starting to be applied in almost all disciplines, including in Indonesian language subjects. Universities as educational institutions that have a strategic role in producing quality human resources are faced with the challenge of integrating digital technology in the learning process to answer the demands of the times.

Since the era of digitalization began to develop, the use of digital technology in learning Indonesian in Indonesian universities began to attract attention. Indonesian as the state language and the main language of instruction in the Indonesian higher education system, has a central role in shaping student competencies in various disciplines. Indonesian language learning in higher education does not only focus on teaching linguistic aspects, but also on forming students' communicative attitudes and skills that can be applied in various contexts of professional life [2]. Therefore, effective and relevant Indonesian learning strategies are needed to facilitate these goals, especially in the context of growing technology.

The implementation of digital-based learning strategies in Indonesian higher education, especially in Indonesian language teaching, faces considerable challenges. Although Indonesia

has come a long way in utilizing technology for education, there are still gaps in the implementation of technology in various universities. In some large universities, adequate digital infrastructure and sufficient digital competence among lecturers and students provide advantages in the implementation of digital learning. However, in higher education institutions with limited resources, accessibility and technological capability are issues that cannot be ignored. Not to mention, the diverse characteristics of students who come from different backgrounds also affect the effectiveness of this digital learning.

One of the major influences accelerating the adoption of digital learning in higher education is the COVID-19 pandemic [3] . This global pandemic has forced almost all education systems to adapt to online learning as the only possible solution. Face-to-face learning that used to be the main method of teaching in higher education is now replaced with online learning, which requires lecturers and students to master various digital platforms. Indonesian language teaching, which was previously conducted conventionally through face-to-face meetings, has been forced to switch to online media, such as online learning applications, video conferencing, and various other digital-based learning platforms.

However, this rapid transition did not go without a hitch. Many lecturers do not have adequate digital skills, while students also face difficulties in accessing online learning materials, especially for those who live in areas with poor internet connectivity. Indonesian language learning that previously relied on direct interaction and group discussions must now be adapted to digital methods, which requires a different approach. Some lecturers may find it difficult to design engaging and effective learning materials in digital form, while students also have to adjust to an all-digital learning environment. This suggests a gap between the potential of technology and the readiness of its implementation in the context of higher education in Indonesia.

Various studies conducted post-pandemic show a disparity between universities that have advanced technological infrastructure and those that lack the means to support digital-based learning. Therefore, the development of a digital-based Indonesian language learning strategy is very important to overcome this problem. This strategy does not only focus on the use of technology, but also includes curriculum design, teaching methods, and assessment that are relevant to the development of information technology. In addition, digital learning also needs to accommodate the needs of Indonesian language teaching that emphasizes communicative and contextual language skills.

In the period 2020 to 2024, various studies on digital Indonesian language learning began to emerge. These studies seek to identify various digital approaches that can be used to improve the effectiveness of Indonesian language teaching. One of the most researched approaches is the use of online learning platforms such as Learning Management System (LMS), mobile applications, and social media as tools in language teaching. For example, some

universities use applications such as Moodle, Google Classroom, or Edmodo to deliver materials, give assignments, and evaluate students. In addition, the use of learning videos and interactive materials that can be accessed online is also increasingly being applied in Indonesian language learning.

However, the application of technology in Indonesian language learning is not without challenges. On the one hand, many lecturers feel that digital learning reduces the direct interaction aspect that has been the main strength of Indonesian language teaching. On the other hand, although digital platforms offer various advanced features, not all students have sufficient digital skills to access materials optimally. This suggests that the implementation of digital-based learning strategies in Indonesian language teaching in higher education requires a more holistic and adaptive approach.

A systematic study of digital-based Indonesian learning strategies is essential to provide a clearer picture of the implementation of technology in Indonesian language teaching in higher education. Through this review, various researches that have been conducted in the period 2020-2024 will be collected, analyzed, and synthesized to identify key trends, challenges faced, and successes achieved. The review will also identify remaining research gaps and provide recommendations for the development of better learning strategies in the future.

This study is expected to make an important contribution to the development of an Indonesian curriculum that is more responsive to technological developments, as well as facilitating the improvement of lecturers' and students' digital competencies. Thus, Indonesian universities will be able to optimize the use of technology to improve the quality of learning, not only in teaching Indonesian, but also in teaching various other disciplines.

2. Method

The method used in the preparation of this article is a literature study with a Systematic Review. Systematic Review is used to determine the condition of various research in the Digital-based Indonesian Learning Strategies in Higher Education the following are the stages in the Systemtic Literature Review (SLR):

2.1 Stage 1. Defining Literature Eligibility Criteria

Eligibility criteria are very important in assessing the validity, applicability, and completeness of the review.

Table 1. Inclusion and Exlusion Criteria

Inclusion Criteria (IC)	Exlusion Criteria (EC)
This paper/article has one of of the following terms in the title: Digital-based Indonesian Learning Strategies in Higher Education	Articles not written in Indonesian

Research article/proceedings	Article Unrelated to Digital-based Indonesian Learning Strategies in Higher Education
Articles are written in Indonesian	The article is a theoretical review (e.g. proposes a framework).

Stage 2. Definition of Information Sources

Literature searches are limited to articles published between 2020-2024. The article search was carried out by an online process using the search word "Digital-Based Indonesian Learning Strategy" on each title found in the data base on Google Scholar. Article search using Harzing's Publish or Perish (Windows GUI Editin) 8.4 software.

Stage 3. Literature Selection

Identify the literature used in accordance with the research keywords to be studied. In this study, discussions will be carried out related to digital-based Indonesian language learning strategies. for this reason, researchers entered the keyword "Digital-Based Indonesian Learning Strategy" in the Google Scholar data base. From the google scholar data base based on search keywords, 100 publications were obtained according to the specified criteria. Then the screening process is carried out to select publications that meet the criteria in accordance with Table 1. Namely the inclusion and exclusion criteria. Based on these criteria, 84 articles were obtained.
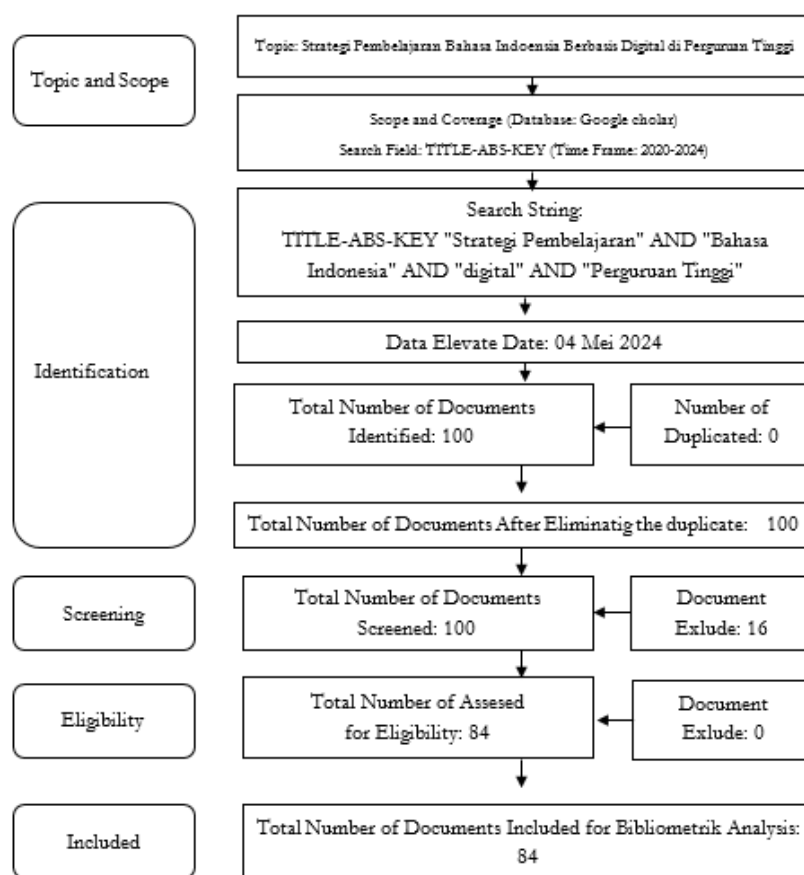

Figure 1: Data Collection Process

3. Result and Discussion

Based on a literature search on Google Scholar, 100 articles were found relevant to the topic of "digital-based Indonesian learning strategies in higher education" in the period 2020 to 2025. Of these, 84 articles met the inclusion criteria and were used in this systematic review. The selected articles came from various sources presenting quantitative and qualitative research as well as case studies on the implementation of technology in Indonesian language learning in higher education. The results of the review analysis revealed that the digital-based Indonesian learning strategies used in the articles are very diverse and involve a variety of cutting-edge technologies. Some of the technologies and platforms that are often used are:

- ICT (Information and Communication Technology): The utilization of information and communication technology in learning, which involves the use of Learning Management Systems (LMS), learning software, and online communication platforms that support interaction between lecturers and students [3].

- Artificial Intelligence (AI): Artificial intelligence technology is used to enrich the learning experience by providing data-driven solutions, such as adaptive learning systems, chatbots for student consultation, and AI-based automated evaluations to objectively assess students' abilities [4] .

- Digital Learning Media: Various digital media, such as e-books, interactive modules, and multimedia-based materials are used to accommodate students' various learning styles [5].

- YouTube Platform: YouTube as a visual learning resource, is used to deliver learning materials through videos that can be accessed at any time, allowing students to repeat materials as needed [6].

- Podcast: Learning in audio form using podcasts allows students to study Indonesian language materials while traveling or in their spare time [6].

- Social Media (TikTok, Instagram, Facebook): These social media platforms are not only used as a means of sharing learning materials but also as a medium to enrich discussions and informal communication between students and lecturers [7].

- Quizzes and Kahoot: Interactive quiz platform used to test students' understanding directly, which provides a fun learning experience and encourages students' active participation in learning [8], [9].

- Flipped Classroom: This approach changes the traditional paradigm of learning by requiring students to learn material independently using digital media before discussing and working on assignments face-to-face [10].

- Android Apps: The use of mobile applications such as applications for grammar practice or vocabulary enrichment specifically designed for Indonesian language learning [11].

- Blind Learning: An approach where learning is done independently without direct interaction with the teacher, with the utilization of technology that allows full access to learning from a distance.

- Videos and Animated Movies: Videos and animations are used to present material visually so that it is more easily understood by students, especially in explaining complex concepts in Indonesian [12].

3.1 Utilization of Digital Technology in Indonesian Language Learning

The role of technology in digital-based Indonesian language learning in higher education cannot be underestimated. Digital technology has changed the educational paradigm, from traditional face-to-face learning to more flexible and affordable learning. Some important findings from the review are as follows:

- ICT (Information and Communication Technology): The use of LMS (Learning Management Systems) such as Moodle, Google Classroom, and Edmodo allows students to access learning materials, do assignments, and interact with lecturers online. This technology gives students the flexibility to learn at their own pace and time. In addition, ICT also facilitates collaboration between students through online discussion forums, which enriches their learning experience.

- Artificial Intelligence (AI): AI in education has been growing rapidly, and its application in Indonesian language learning is starting to show positive results. Adaptive learning systems that use algorithms to tailor learning materials to students' abilities provide a more personalized and effective learning experience. AI-based chatbots are also used to provide automatic answers to common questions asked by students, as well as to provide tutoring through interactive conversations.

- Digital Learning Media: Digitalization of learning materials provides easy access for students. Various materials such as e-books, video tutorials, and interactive modules can be accessed by students anytime and anywhere. Multimedia-based learning materials can accommodate various learning styles of students, whether they are more visual, auditory, or kinesthetic. This is important to create more inclusive and engaging learning for all types of students.

3.2. 21st Century Learning: Necessary Skills for Generation Z

Digital-based learning supports the development of 21st century skills that are essential to prepare students for the challenges of the world of work. In this study, it was found that the use of digital technology in Indonesian language learning is instrumental in developing skills such as:

- Critical Thinking: The use of flipped classroom and PBL (Problem-Based Learning) encourages students to think critically. In the flipped classroom, students first learn the material independently using digital resources and then discuss and solve problems

collaboratively in class. This approach allows students to be more active in the learning process and develop critical thinking skills in analyzing information.

- Creativity: Digital-based learning such as the use of Kahoot or quizzes not only tests students' understanding, but also stimulates their creativity in finding solutions and answers. Creativity also develops through the use of social media to communicate and share learning ideas in a more dynamic and interactive form.

- Communication and Collaboration: Learning using social media platforms such as TikTok, Instagram and Facebook allows students to share learning materials and have informal discussions. This creates a more open space for students to collaborate and interact with lecturers and fellow students, improving their communication and collaboration skills [10], [13].

3.3. The Impact of COVID-19 Pandemic on Generation Z in Digital Learning

The COVID-19 pandemic has accelerated the adoption of digital learning in higher education, and this has had a huge impact on Generation Z, who are used to using technology in their daily lives [10], [14]. For Generation Z students, digital learning is not only a medium to get materials, but also a way to develop digital skills that are highly needed in the future workforce. During the pandemic, online learning has become the only viable method, prompting universities to accelerate the implementation of technology in learning. This has also improved students' digital literacy, which is a plus for them in the working world. However, while digital learning provides many advantages, it is undeniable that the pandemic also brings great challenges, especially regarding the accessibility of technology for students living in remote areas.

3.4 Network and Technology Affordability Constraints

One of the biggest challenges found in this study is the limited access to technology and internet networks for students in remote areas. Although digital technology is very helpful in learning, not all students have adequate access to the necessary devices or a stable internet connection. This limitation greatly interferes with the smooth learning process for students who are hampered by geographical or economic conditions. This creates a gap in access to education that must be addressed. Some of the solutions exemplified in the research are the use of offline learning platforms, downloadable materials, and the use of print media or television/radio as learning alternatives.

3.5 Recommendations for Digital Learning Development in Higher Education

Based on the results of this study, some recommendations that can be implemented to improve and develop digital-based Indonesian language learning in higher education are as follows:

- Technology Infrastructure Improvement: The government and universities should ensure that technological infrastructure, especially in remote areas, can support digital-

based learning effectively. This includes the provision of devices and adequate internet access.

- Lecturer Training in Educational Technology: Lecturers need to be provided with regular training to master digital learning technologies, including the use of LMS, AI, and social media to support the teaching-learning process.

- Innovation in Learning Methods: Universities need to develop and implement more innovative learning methods, such as blended learning, to provide a more flexible and dynamic learning experience for students.

- Personalized Approach to Learning: Using AI technology and adaptive platforms to create a more personalized learning experience, tailored to each student's needs and abilities.

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4. Conclusion

Digital-based Indonesian language learning in higher education has been proven effective in developing students' 21st century skills, including critical thinking, creativity, communication, and collaboration. Technologies such as ICT, Artificial Intelligence (AI), social media (YouTube, Instagram, TikTok), and digital apps (Kahoot, quizzes) allow students to engage in more flexible, interactive, and engaging learning. Methods such as flipped classroom and problem-based learning (PBL) are also increasingly popular in supporting the development of these skills. In addition, the COVID-19 pandemic accelerated the transition to digital learning, encouraging generation Z students to become more accustomed to using technology in their learning process.

However, despite the many benefits of digital learning, the main challenge is the limited access to technology and internet networks, especially for students in remote areas. This results in a gap in learning achievement that needs to be addressed by strengthening technology infrastructure, providing adequate devices, and improving internet access across Indonesia. Therefore, it is important for the government and universities to develop inclusive policies and provide training for lecturers in utilizing educational technology to improve the quality of learning in the future.

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